



The European Agency for the Evaluation of Medicinal Products
Veterinary Medicines Evaluation Unit

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COMMITTEE FOR VETERINARY MEDICINAL PRODUCTS

POLYOXYL CASTOR OIL ← POLYOXYL HYDROGENATED CASTOR OIL

SUMMARY REPORT

1. Polyoxyl n castor oil (n=30 to 40) (synonyms: ethoxylated castor oil, polyethylene glycol castor oil) is a mixture of tricinoleate esters of ethoxylated glycerol with small amounts of polyethyleneglycol (macrogol) ricinoleate and the corresponding free glycols. The number (n) associated with the name of the substance represents the average number of oxyethylene units in the compound. Polyoxyl n hydrogenated castor oil (n=40 to 60) is a mixture of trihydroxystearate esters of ethoxylated glycerol with small amounts of macrogol trihydroxystearate and the corresponding free glycols. The substances are generally highly dispersible in water.
2. Polyoxyl castor oil and polyoxyl hydrogenated castor oil are nonionic surfactants, which are used as emulsifying and solubilising agents in pharmaceutical preparations and cosmetics. Examples are polyoxyl 35 castor oil (Cremophor EL; CAS 61791-12-6), polyoxyl 40 castor oil (Marlowet 40, Emulgin RO 40), polyoxyl 40 hydrogenated castor oil (Cremophor RH 40) and polyoxyl 60 hydrogenated castor oil (Cremophor RH 60). The substances are included as excipients in numerous preparations intended for use in all food producing species by parenteral, oral or topical administration. The concentration in products is usually between 0.1% and 20% with a maximum of 27.5%. The doses of concentrated substances to different species is in a range of 0.01 and 2.5 ml/day (cattle and horses 0.75 to 2.5 ml, sheep and goats 0.2 to 0.5 ml, swine 0.25 to 1.20 ml, poultry 0.001 to 0.03 ml and salmon as a dip for 30 minutes in a 36% solution diluted $1/3 \times 10^4$ before use).
3. In rats, polyoxyl 35 castor oil, had some antidiuretic effect after oral administration of 2.5 ml/kg bw. It was shown that polyoxyl 35 castor oil could bind to membrane transport P-glycoproteins *in vitro*, thereby inhibiting the elimination of drugs out of cells and increasing bioaccumulation of drugs within cells. It was concluded that polyoxyl 35 castor oil is a pharmacological active substance. However, polyoxyl castor oil and polyoxyl 40 hydrogenated castor oil are claimed to be devoid of pharmacological activity at the concentrations at which they are employed as excipients, i.e. a maximum of 2.5 ml/animal by the intramuscular, subcutaneous, topical or oral route. Studies showing possible pharmacological activity have not been performed in the target species.
4. No data on metabolism and pharmacokinetics of polyoxyl castor oil and polyoxyl hydrogenated castor oil were provided. However, it is known that polyoxyethylene compounds are poorly absorbed from the gastrointestinal tract due to their high dispersibility in water and limited liposolubility.

7 Westferry Circus, Canary Wharf, London, E14 4HB, UK
Switchboard (44-20-7) 418 8400 Fax (44-20-7) 418 8447
E-mail: mail@emea.europa.eu <http://www.emea.europa.eu>

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